

Final Report

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Participation in the Version 0 Effort for the EOS Ground System
Project

NAG 5-1715

8/91 to 12/93

Report submitted by
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This document will serve as the final report for the project funded through award NAG-1715. This funding has supported the efforts of Dr. W. J. Emery and D. G. Baldwin in their participation as science advisors for the Version 0 EOSDIS (Earth Observation System Data Information System) for the period 8/1/91 to 12/31/93.

As science advisors, Emery and Baldwin have the responsibility to provide scientific guidance to the developers of the V0 (Version 0) IMS (Information Management System). The V0 system is a prototype effort, paving the way for the V1 (Version 1) system being developed by Hughes Information Systems. Most of the efforts during the two year period have been split between V0 and V1 with the first year's emphasis more on V0.

Version 0 Activities

Baldwin and Emery have been involved in the design and development of V0 since the inception of the project. As a Science Data Panel member, Emery participated in the original discussions which determined the need for a distributed data system. Baldwin participated in the initial design and requirements meetings, providing input from a science user perspective. One of our most important contributions has been the development of realistic scientific scenarios which define and test the functionality required of the data system. These scenarios were based on actual research projects underway at CCAR (Colorado Center for Astrodynamics Research). The scenarios establish the link between the science user and the actual data in the system and as such provide an indication to the developers of which metadata elements and search criteria are necessary for data retrieval. Once the V0 IMS had been successfully designed and prototyped, the scenarios were customized so that they could be used to thoroughly test the end to end functionality of the IMS. Following this, Baldwin and Emery participated in extensive operational testing of the system, providing science feedback at both the Science Data Panel meetings (Emery) and the V0 development meetings (Baldwin). Other V0 activities include prioritization and recommendation of specific data sets to be included

in the system, reviews of technical documents related to system descriptions and generation of new scenarios for system exercise.

Version 1 Activities

In the second year of the project, the focus shifted towards the design and development of the V1 system. Baldwin and Emery are members on the DWG (Design Working Group) and the DOAFT (Data Organization and Access Focus Team). Their efforts as part of these groups include the attendance of all meetings and telecons, assuring that the science interests are adequately represented in the design and functionality of the new system. The DWG consists of both scientists and developers working together to bridge the gap between the abstract concepts of system design and the practical problem of data retrieval. The work done by the DWG was very productive and resulted in several effective modifications to the system design. The DOAFT, comprised of scientists, developers and data center representatives, is responsible for determining the best way to represent the actual data in the V1 system. The science part of this team ensures that the data and meta data models will correctly respond to the requirements of a science user. As an example, geographic subsetting of swath data requires that the associated metadata contain some specific parameters. The science element of the DOAFT would identify the need for subsetting and ascertain that the meta data model could provide this capability.

Both Baldwin and Emery participated in the SRR (System Requirements Review) and the SDR (System Design Review). Their comments and suggestions have resulted in many modifications and improvements to both the requirements and the design solutions. Some specific V1 efforts include, development of EOS era science scenarios, collaboration with Hughes representatives to better define science users needs, evaluating V1 prototype efforts (user interfaces, system functionality, etc), monitoring the evolution from V0 to V1 and reviewing documents which describe the requirements and design.